DOCUMENT RESUME

ED 479 384 HE 036 110

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TITLE	Chilly Classrooms for Female Undergraduate Students at a Research University: A Question of Method?
PUB DATE	2003-04-00
NOTE	33p.; Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, IL, April 21-25, 2003).
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01/PC02 Plus Postage.
DESCRIPTORS	*Classroom Environment; *College Students; *Females; Higher Education; Intellectual Disciplines; *Sex Discrimination

ABSTRACT

The question of whether or not a "chilly" classroom environment exists for female college students was studied in selected disciplines at a university. Also explored was whether the research approach, survey or focus groups, revealed different things about the question. The study was conducted with undergraduate women students in six different disciplinary areas at a land grant university. Responses were received from 396 female students to a Web-administered questionnaire (41% response rate) and 6 focus groups, with a total of 20 participants, were conducted. Analyses of survey data do not unequivocally indicate the presence or absence of the chilly classroom climate, although survey responses suggest that this occurs in some disciplines. Focus group responses do suggest that behaviors characteristic of chilly classroom climates occur across disciplinary groups, and even disciplines with a female majority were not free of chilly classroom behaviors. Findings support the contention that research methods are important in assessing classroom climates. (Contains 25 references.) (SLD)

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Chilly Classrooms for Female Undergraduate Students at a Research University: A Question of Method?

ED 479 384

Paper Discussion

American Educational Research Association Annual Meeting
April 2003
Chicago, IL

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Background and Purpose of the Research

One outgrowth of research on classrooms has been a growing body of scholarship documenting differential treatment that may disadvantage girls and women in coeducational settings. Among the most influential and widely cited of these studies is Hall and Sandler's (1982) report, "The Classroom Climate: A Chilly One for Women?" The problems described in this report spawned numerous follow-up investigations in postsecondary institutions as well as primary and secondary schools (AAUW, 1998; Brady & Eisler, 1995; Sadker & Sadker, 1994; Whitt et al., 1999). As a consequence of these studies, classroom climate has come to be more widely understood as an important indicator of educational equity and quality for all students.

Despite widespread documentation of "chilly climates," several studies concluded that evidence of the chilly climate for women in postsecondary classrooms is thin (Constantinople, Cornelius, & Gray, 1990) or no longer relevant (Drew & Work, 1998). These studies typically rely primarily on data derived from self-report surveys. Classroom climate researchers argue that many "chilling" behaviors go unacknowledged because they reflect socially accepted patterns of communication. Thus, it is our contention that data derived from self-report instruments may not be best suited to drawing conclusions about the existence or nonexistence of "chilly climates" in classrooms. The study of classroom climates is an important measure of educational quality, not only for women, but also for other historically disadvantaged groups. Hence, it is crucial that conclusions about chilly climates are accurately reported so appropriate responses can be implemented.

Research Questions

Broadly, this study was designed to explore the question of whether or not research findings, claiming that chilly classrooms no longer exist in postsecondary education, are conclusions based largely upon methods of data collection and therefore, subject to change depending on the methods employed. The study replies to the following questions:

1. Do survey data lead us to conclude that chilly classroom climates exist for undergraduates in selected disciplines at a selected university?
    a. Are there disciplinary differences in perceptions of chilly classroom climates for women?
2. Do focus group data lead us to conclude that chilly classroom climates exist in the selected disciplines measured in question one?
    a. Are there disciplinary differences in perceptions of chilly classroom climates for women?
3. Do the different research methods employed lead us to draw different conclusions about chilly climates for women in classrooms at this university?

Theoretical Framework

Chilly Climate Research

As women increasingly gained access to classrooms over the 20th century, it was assumed they would benefit from an education equal to male students in those same classrooms. It was not until the U.S. women's movement in the 1960s that academic women began to systematically examine the classroom experiences of women in coeducational environments in the U.S. By introducing the labels "classroom climate"

and "chilly climate," Hall and Sandler (1982) gave a name to a problem that had long existed but remained largely invisible. Along with "chilly climate," the terms "gender bias" and "gender discrimination" are also used in the literature to describe classroom environments that disadvantage girls and women (Allan, 2002). More recently, "chilly climate" has also been employed to describe classroom practices that may disadvantage students of color, GLBT students, poor students and students with disabilities regardless of gender (Chism, 1999; VanderPutten, 2001).

Claims made in the 1982 chilly classroom climate report emerged from an understanding that classrooms reflect the strengths, weaknesses, and biases of the larger society in which they are situated (Sandler, Silverberg, & Hall, 1996). It is from this vantage point, that numerous faculty behaviors, largely unconscious, came to be understood as contributing to classroom environments that disadvantage women. Specific examples of these behaviors include: calling on male students more often than women; asking follow-up questions of men and not women; focusing more on a woman's appearance rather than her accomplishments; paying more attention when men speak; viewing marriage and parental status differently for males and females; and attributing women's achievements to something other than their abilities (Hall & Sandler, 1982; Sandler, Silverberg, & Hall, 1996).

Privilege

Johnson (2001) delineates how identity privilege serves to advantage whites, men, and heterosexuals—and members of any groups that have historically been the recipients of conferred dominance in a society. The particular advantages take different forms depending on identity category; however, the general concept applies in that privilege

serves as a metaphorical package of unearned assets that accumulate over time to advantage members of particular identity categories (McIntosh, 1988). In this study, we draw on the concept of gender privilege primarily for its utility for focusing attention on the often invisible or subtle ways in which differential treatment can operate to advantage men and disadvantage women. In the case of chilly classrooms, many behaviors contributing to such an environment may go unnoticed because they have become taken-for-granted in a gendered society.

Relatedly, Mary Rowe coined the term "microinequities" to describe the kinds of subtle behaviors that when taken alone might appear to be inconsequential (Sadker & Sadker, 1994). Yet researchers contend the cumulative effects of such practices can have deleterious consequences for girls and women including diminished self-esteem, lower scores on standardized tests, and lowered career aspirations. Since both men and women learn cultural expectations of gender roles, it is not surprising that *both* male and female faculty may behave in ways that create "chilly" classrooms for women (Sadker & Sadker, 1994; Sandler, Silverberg, & Hall, 1996). This is important to our investigation as it is a possible explanation for why even many female students may not recognize "chilly" behaviors as gender-biased (Sadker & Sadker, 1994; Sandler, Silverberg, & Hall, 1996).

Research Design

Data Sources and Methods

This study was conducted with undergraduate women students who were juniors or seniors in six different disciplinary areas at a land grant research university in the northeast. This university was selected for the following reasons: (a) it enrolls the largest number of undergraduate students in the state and provided the best opportunity

for building sample size and data collection and; (b) it was most likely to provide greatest access to student names, majors and contact information. The departments were selected based on the following enrollment patterns: (a) departments where men comprised the majority of students, (b) departments where women comprised the majority of students and (c) departments where the enrollment of men and women was more evenly distributed. The researchers are two white, middle-class academic women who identify as feminist.

We employed both quantitative and qualitative methods of data collection to investigate undergraduate students' experiences of both overt and subtle behaviors that characterize chilly classroom climates for women. The first method, an electronic self-report anonymous survey, was administered via a website. The survey was constructed based on the literature including a sample questionnaire provided by Sandler, Silverberg and Hall (1996). It was revised in consultation with Dr. Bernice Sandler in attempt to incorporate questions that would elicit data related to subtle behaviors. Closed-ended questions inquired about the frequency with which a student had experienced behaviors. A scale that ranged from never (1) to often (4) was utilized. An invitation to complete the survey was emailed to randomly selected female students in the six disciplines. The response rate was *41% (N = 396)* with relatively equal proportions received from each disciplinary area.

A stratified random sampling procedure was used to select focus group participants from those who completed the on-line survey. Focus groups were 90-120 minutes in duration, facilitated by the investigators, audiotaped, and transcribed for

analysis. Each group included female students in each of the selected disciplines. Six focus groups were held with a total of 20 participants.

Analysis

Frequencies were calculated for each survey item. To reduce the data, scales were created to represent constructs relevant to chilly classroom climates. One scale measured the representation of women in the curriculum, three scales measured student behaviors, and four scales measured faculty behaviors. Each scale consisted of three to eight items. The internal consistency of the scales was measured using Chronbach's alpha. A composite variable was created for each scale by summing a respondents' rating of each item in the scale. Descriptive statistics were employed to examine the extent to which students perceived chilly climate behaviors to exist.

Respondents were assigned to one of three groups based on the enrollment pattern of their discipline (female majority, male majority, or proportional male/female enrollment). One-way ANOVAs were conducted to determine if these groups differed in their ratings of the classroom climate. When an ANOVA identified significant differences between groups, Scheffe's post-hoc tests were used due to differences in cell sizes.

Responses to open-ended questions from the survey and data collected via focus groups were analyzed using established methods of qualitative inquiry including coding and categorizing processes that make use of both inductive and deductive approaches (Miles & Huberman, 1984). A deductive analytic approach was also used in response to the research questions: "Do qualitative data lead us to conclude that chilly classroom climates exist in the selected disciplines?" and "Do these findings indicate disciplinary

differences in perceptions of chilly classroom climates for women?" Based on the literature about chilly classroom climates in postsecondary education (Sandler, Silverberg & Hall, 1996), we looked specifically for confirming and disconfirming evidence of the following classroom behaviors:

- Encouragement and/or discouragement
- Valuing women's contributions
- Defining women by their sexuality and/or unwanted sexual attention
- Female representation/inclusion in the curriculum
- Reinforcing traditional or stereotypical views of women and gender roles
- Questioning women's competence
- Gender differences related to space, time, and attention
- Gender differences related to peer interactions

Each of the above behavioral categories served as a code in our deductive coding process. We then engaged in a second layer of coding where each of the above behavioral categories was coded by source of the behavior. Based on our inductive reading of the data, we settled upon the following three sources: male peers, faculty, and female peers.

The data from each behavioral category were tagged with a code identifying whether the source of the behavior was attributed to male peers, faculty, or female students. In some cases, data units were tagged with multiple "source" codes. Finally, in an effort to further explore if the data could provide insights as to why quantitative and qualitative methodologies might lead to different findings related to chilly classroom climates, a third layer of coding focused on the types of explanations/interpretations offered by participants in relation to chilly classroom behaviors. The themes generated through this process included:

- Denial
- Minimizing
- Trivializing
- Blaming women
- Blaming the research

- Meritocracy
- Sexism
- Age
- Cultural differences

We explore these further in the discussion section of this paper.

Limitations and Validity

The findings from this investigation are based on data collected at a land grant research university in the northeast and need to be interpreted within that context. Recognizing institutional differences, it would be inappropriate to generalize the findings from this study to all postsecondary institutions. The survey was distributed to a randomly selected group of female students (except in engineering, where all female students received a survey due to the low numbers of women in that major). Despite this, we had very little control over who, within that sample, chose to respond and consequently some bias may be inherent in the self-selection of respondents. When considering focus group data for this study, the strength of the method is also its greatest limitation. It allows for in-depth focused exploration of an issue with opportunities for clarifying questions, but at the cost of generalizability and potential researcher bias. Additionally, focus group participation averaged only 3-4 students due to the challenges related to scheduling and late cancellations on the part of participants. In light of these limitations, we have worked to promote the soundness and validity of our findings through careful attention to detail, triangulation of data sources, and methods of analysis. We do not claim to produce generalizable conclusions in this study. Rather, we expect the findings to provide insights and assertions that are transferable to other settings and can serve as a guide for further data collection and refining research claims about classroom climates.

Findings

Quantitative Findings

Analyses of survey data do not unequivocally indicate the presence or absence of chilly classroom climates for women at this university. Rather, the data suggest a more complex picture. The frequency rates suggest that chilly classroom climates exist for a portion of survey respondents. However, analysis of scales indicates that chilly classroom climates are rare. An examination of the frequency rates for the 19 survey questions inquiring about student behaviors showed that 20% of the respondents reported that 13 of the behaviors occurred at least sometimes. Behaviors reported to occur at least sometimes by one third or more of the respondents were: males taking over leadership (59%); sexually suggestive stories, jokes, or humor (56%); males taking up more class time or space (41%); women censoring themselves in classes because they feel uncomfortable (41%); disparaging remarks about women's behaviors (39%), being interrupted by male students (37%); and body language such as staring, leering, or sexual gestures. Of the 16 questions inquiring about faculty behaviors, 20% of the women reported that 3 of the behaviors occurred at least sometimes. These included paying attention to the most talkative students who are male (45%), dismissing students' comments and questions about women's issues as not relevant (22%), and not taking women as seriously as men (20%).

Survey questions were used to create eight scales to measure representation of women in the curriculum, student behaviors, and faculty behaviors. A composite variable, comprised of each variable in the scale, was created to represent each scale.

Mean scores and standard deviations were computed for each composite variable. Researchers made a determination to consider a construct as contributing to a chilly climate if the mean score was equivalent to or greater than a rating of "sometimes." On a composite variable consisting of 5 items, a score of 5 represents that a behavior never occurs; 10 it rarely occurs; 15 it sometimes occurs; and 20 it often occurs.

The *representation of women in the curriculum* scale ($\alpha = .90$) consisted of three questions inquiring about the extent to which women were represented in course content and materials. A mean score of 3 indicates that women are never represented in the curriculum; 6, they are rarely represented in the curriculum; 9, they are sometimes represented in the curriculum; and 12, they are often represented in the curriculum. The mean score for respondents ($M = 8.1$, $SD = 2.2$) indicated that women are sometimes represented in curriculum, however, the score illustrates a need to integrate women into the curriculum to a greater extent.

A one-way ANOVA indicated significant differences in the representation of women in the curriculum between the three disciplinary groups ($F = 26.95$, $df = 2/391$, $p < .001$). Women in disciplines with equal proportions of men and women ($M = 9.01$, SD 1.9) and those with a female majority ($M = 8.46$, $SD = 2.2$) reported a higher frequency of women represented in the curriculum than did women in disciplines with a male majority ($M = 7.12$, $SD = 2.0$).

Student behaviors were divided into the following three scales: *behaviors of male classmates, silencing behaviors, and sexually offensive behaviors. Behaviors of male classmates* ($\alpha = .80$) consisted of six questions related to the frequency with which male classmates dominated discussion, space, and "collaborative" activities. A mean rating of

6 indicates that the behaviors of male peers characteristic of a chilly climate never occur; 9, they rarely occur; 18, they occur sometimes; and 24, they occur often. Respondents' mean rating (M =11.6, SD = 3.7) indicated that behavior of male peers contributing to a chilly classroom climate occurred slightly more than rarely.

A one-way ANOVA revealed differences between the three groups in reports of the frequency with which behaviors of male classmates that characterize chilly climates occurred (F = 9.96 df 2, 391, $p < .001$). Respondents in disciplines with a male majority reported a higher occurrence of these behaviors (M = 12.6, SD = 3.5) than did respondents in disciplines with an equal enrollment of males and females (M = 11.8, SD = 3.7) or disciplines with a female majority (M = 10.7, SD = 3.7).

The second scale, *silencing behaviors* (α = .86), consisted of eight variables related to students' self-censoring in class due to discomfort as well as derogatory comments about women from other students. A score of 8 indicated that women never experienced silencing behaviors; 16, they rarely experienced these behaviors; 24, they sometimes experienced these behaviors; and 32, they often experienced silencing behaviors. Respondents' mean rating (M = 14.2 SD = 5.0) indicated that silencing behaviors occurred less than rarely and therefore, do not contribute to a chilly classroom climate for women. A one-way ANOVA did not indicate significant differences between respondents in disciplines with different enrollment patterns.

The third scale of student behaviors, *sexually offensive behaviors* (α = .85), consisted of five questions regarding sexually suggestive humor, sexual remarks, leering, and sexual or physical contact. A score of 5 indicates that respondents never experienced sexually offensive behaviors; 10, they rarely experienced these behaviors; 15, they

sometimes experienced these behaviors; and 20, they often experienced these behaviors. Respondents' mean rating (M = 10.2, SD = 3.7) indicated that sexually offensive behaviors rarely occurred and do not contribute to a chilly classroom climate for women. A one-way ANOVA did not show significant differences between respondents in disciplines with different enrollment patterns.

Items related to faculty behaviors characteristic of chilly classroom climates for women were divided into four scales: *stereotyping women, encouraging men more than women, dismissing and demeaning women, and sexually offensive behaviors*. The first of these scales, *stereotyping women* (α = .67), consisted of three items related to faculty's stereotypical expectations and portrayal of women. A mean score of 3 indicates that faculty never stereotyped women; 6, they rarely stereotyped women; 9, they sometimes stereotyped women; and 12, they often stereotyped women. Respondents' mean rating (M = 4.2, SD = 1.6) indicated that faculty almost never stereotyped women. A one-way ANOVA revealed significant differences between the three groups in their rating of faculty behaviors that stereotyped women (F = 4.21, df = 2, 388, $p < .01$). Respondents in disciplines with a female majority (M = 4.4, SD = 1.6) reported a higher occurrence of stereotyping than respondents in disciplines with a male majority (M = 3.9, SD = 1.5).

The second scale, which measured faculty behaviors that contribute to chilly classroom climates, *encouraging men more than women* (α = .78), consisted of three items related to faculty focusing more attention and encouragement on men in the classroom. A mean score of 3 indicates that faculty never encouraged men more than women; 6, they rarely encouraged men more than women; 9, they sometimes encouraged men more than women; and 12, they often encouraged men more than women.

Respondents' mean rating (M = 5.45) indicated that faculty members rarely encourage men more than women. A one-way ANOVA did not show significant difference between the groups in their ratings of faculty behaviors that encourage men more than women.

The third scale, *dismissing and demeaning women* (α = .87), consisted of eight items related to faculty behavior that fails to take women seriously, sends messages that women and their contributions are not valued, and uses sexist language and materials. A score of 8 indicates that women never experienced these behaviors, 16 they rarely experienced these behaviors, 24 they sometimes experienced these behaviors, and 32 they often experienced these behaviors. Respondents' mean rating (M = 10.8, SD = 3.8) indicated that faculty almost never employed behaviors that dismiss or demean women. A one-way ANOVA revealed significant differences between the three groups ratings of behaviors that dismiss or demean women (F = 3.71, df = 2, 388, $p < .05$). Respondents in disciplines with a female majority (M = 11.4, SD = 3.9) reported a higher occurrence of these than respondents in disciplines with a male majority (M = 10.2, SD = 3.6).

The fourth scale, *sexually inappropriate behaviors* (α = .74), consisted of three items related to subtle and overt sexual behaviors of faculty. A mean score of 3 indicated that faculty engaged in inappropriate sexual behaviors toward women; 6, they rarely did so; 9, they sometimes did; and 12, they often did. Respondents' mean rating (M = 4.12, SD = .61) indicated that faculty almost never engaged in sexually inappropriate behaviors with female students. A one-way ANOVA did not reveal significant differences between respondents in disciplines with different enrollment patterns.

Finally, respondents were asked to rate the overall classroom environment for undergraduate women using a 3-point scale ranging from 1 (very supportive) to 3 (not at

all supportive). The mean rating of 1.42 indicates that respondents characterized the classroom climate very supportive to somewhat supportive. An ANOVA examining differences between the three groups did not reveal significant findings.

In summary, analysis of the quantitative showed that women are represented in the curriculum to some degree but less so for women in disciplines with a male majority. Student behaviors that characterize chilly classroom climates were reported to occur only rarely. Women in disciplines with a male majority reported behaviors of male classmates occur more often than women in disciplines with a female majority ,or equally enrolled males and females. Faculty behaviors characteristic of a chilly classroom climates were reported to almost never or only rarely occur. Women in disciplines with a female majority reported a higher occurrence of faculty behaviors that stereotype and dismiss or demean women. Based on this analysis, chilly classroom climates do not appear to exist at this institution.

Findings from Qualitative Data

Overall, analysis of qualitative data generated in this investigation indicates that behaviors characteristic of chilly classroom climates occur across disciplinary groups (disciplines with a male majority, disciplines with a female majority and disciplines with proportionate male and female enrollment). While there were some disciplinary differences in the degree to which specific types of behaviors were reported, none of the three disciplinary group types were free of chilly classroom behaviors. We report on the qualitative data in the following sections related to: discouragement, invisibility, time and space, gender stereotypes and competence, and defining women by their sexuality. While the data we share here focus specifically on behaviors characteristic of chilly

classroom climates, it is important to note that some participants who shared these experiences also described feeling "comfortable" and "equal" in their classrooms.

Discouragement

"I just got the sense that he was just...he was trying to drive the women away."

Few focus group participants reported feeling that one or more of their professors were overtly trying to discourage women from taking their classes or majoring in that particular field as indicated in the above quote by an engineering student. However, based on our analysis, the more overtly discouraging behaviors for female students were experienced by women in disciplines with a male majority. For instance, one participant described a certain professor who favored males over females explaining that during class the faculty member would call on the male students more frequently than the female students. She explained, "*...and like...take their comments over ours toward the discussion like, we'd say something, he'd just kind of pass over. If a guy said something, he'd have to stop and discuss it.*" Another student from a male-majority discipline reported the following classroom experience with a faculty member:

> So, he asked a question and nobody was raising their hand and the group up there wasn't answering the question, so I was like, I know the answer, I'll raise my hand...and then I realize he was just asking the group...because he was like, 'oh so now Maggie is an expert on this topic, too.' He made me feel like such an idiot. I'm never going to raise my hand again.

Sometimes the examples were more reflective of female students' feelings of discouragement resulting from what was absent in terms of faculty guidance or intervention as in the following example,

> I had a physics lab a couple of years ago that was a horrible experience for me because I wanted to be an equal partner in the lab with the men in my group but they were . . . I mean it's horrible to say that they were far

> superior to me in terms of doing that work and I tried my darndest, but in a sense I had to relinquish, you know, some of the control to them because, you know it's not my field and I tried so hard and you know, I participated as much as I could but I was really just a shadow and that was very frustrating…feeling dumb in a situation like that, feeling like I knew that I should have been able to do it as well, but really couldn't.

Other times, examples were more reflective of female students' feelings of discouragement resulting from behaviors of their male peers. For instance, when describing her experience as a female civil engineering major in a lab setting, one student summarized the attitude or her male classmates as "*They don't let you do crap.*" She elaborated, "*Even if you show up in overalls and you know, a t-shirt and you're like, I'm ready*," the response is "*No.*" Another participant shared similar experiences,

> Yeah, it's funny because when I was growing up I was the youngest kid of three girls and so my dad taught me a lot about tools, fixing cars, things like that so I feel very capable and comfortable but I don't think anyone who would meet me would really expect that because I don't volunteer that kind of information cause it's not really that important so they just assume that I can't do things. I don't know…(participant from male-majority discipline).

Invisibility

"It's like 'hello.' Didn't I say that like 10 minutes ago?"

While the previous examples portray some of the more overt types of behaviors that discourage women and can contribute to chilly classroom climates for female students, the greater share of the comments reflected on types of behaviors that are typically considered to be of a more subtle nature. For instance, some women reported feeling they are disregarded by male peers in their classrooms as in the following example,

> We got put into groups to do a project…we had to pick an organization… and the guys like would not even consider my topics…they wouldn't even

> listen to my suggestions and I totally felt like I was completely ignored (participant from male-majority discipline).

Others described similar experiences of male students that "talk over" and "overpower female students" in classroom discussions and especially in small group discussions where faculty members are less likely to be facilitating the dialogue as in the following:

> I noticed that...when I was working in a group, I couldn't even make a suggestion or something to do and the males would just like overlook it and pretend you didn't even say nothing...then one of them would say it maybe just like 10 minutes later, and everybody would say, oh, yeah, that's a good idea...But it seems like it doesn't matter if it's coming from a female (participant from male-majority discipline.

> But that also has a lot to do with the men taking over when I'm trying to do something in a lab. It's the same thing. It could be that they just want to make their points...(participant from male-majority discipline)

Another characteristic from the literature on chilly classroom climates is the lack of representation and inclusion of women in the curriculum and/or in classroom activities. Students in all disciplinary groups commented on this aspect of the climate and offered a variety of examples and perspectives:

> There aren't any female accomplishments to point out because they're haven't been any women in the field to this point...(participant from male-majority discipline).

> Most examples, like real life examples, cases, are with men—but it doesn't offend me because the majority of people in the past that have been in the business world...have been men so that's where I see all those examples coming from (participant from male-majority discipline).

> I've had one professor, a male professor in Psychology and he does research, but he never does anything including women ever...I personally think that's a little bit sexist (participant from male-majority discipline).

One participant in an equally enrolled discipline described a class where the professor was asked why the syllabus did not include any works by female authors and responded, "there wasn't any writing from females back then on this particular topic."

Time & Space

"I'm interrupted all the time"

Male students taking up more of the professor's time and attention is another characteristic of chilly classroom climates documented in the literature. Participants, as indicated by the following quotes, shared several examples of these types of behaviors:

> Like if I'm talking about something or I'm leading in some kind of direction, they interrupt...It's like I was just about to make that point but obviously you couldn't wait two seconds. You know, it does happen a lot (participant from male-majority discipline).

> It's happened on more than one occasion. It's usually in a lab setting when there is like tools and things like...that wouldn't...you know, a girl, wouldn't be able to do, something like that...whenever I start to take the initiative, a guy steps in, oh let me do that...It's so frustrating and it's happened a lot and I've noticed it a lot (participant from male-majority discipline).

Stereotypes, Disparaging Remarks and Women's Competence

"He was like, you can't lift that, you're a girl."

Stereotypical views of gender roles emerged as a prominent theme in the analysis of focus group data for this study. Comments related to this characteristic of chilly classroom climates cut across disciplinary groups, but were most pronounced in the disciplines with a male majority. For example, one student reported her experience of being the only female student in a lab group where one of the students "took cheap shots all semester." She elaborated, "I had no idea why, just...making comments, saying I couldn't do it because I was a girl. We were doing concrete testing... 'He was like, you can't lift that, you're a girl.'" In other instances, students reported that their male peers questioned their

capability or motivations for joining a field with a majority of males. Referring to her male peers in a male-majority discipline, one student reported, "They just assume I can't do things." When we asked, why they would assume this she explained,

> I don't know, I like to wear girly clothes...I'm a feminine girl and I don't really deny it so I guess that infers that I'm not comfortable dealing with grease and getting my hands dirty when in fact, I love doing stuff like that.

Another student echoed similar experiences saying she gets the "oh you're a girl look" and explained "it's second nature for guys to want to protect you or want to control what's going on and you know, I'm not going to fight that initially..."

A participant from another male-majority discipline described how she "noticed little things..." while working with male peers in groups. She explained,

> you have to do more...I think I have to prove myself, prove like a standard. You know what I mean. Like I have to back up my points way more than any other male student would have to back up his points.

Another participant asserted that female students in her major, "have to work a little bit harder to be noticed" (participant from male-majority discipline).

At the same time female students' competence is called into question based on stereotypical views of gender, these stereotypes are also used to justify women's responsibility for doing a greater share of the work. Related to group work especially, participants in this investigation report they are often expected to shoulder the greater burden of responsibility for keeping group members on task and ensuring they follow through with their assignment. For example, one participant shared that group projects were a place where she saw gender differences playing out. She describes,

> when I get into those [group projects] in classes, it always seems like all the guys want me to be the smart one of the group…just…you know…because I was just kind of quiet in class and take my notes…(participant from male-majority discipline).

Another participant described being the only woman in a group of 11 students assigned to work on a course project in which she was delegated to be the "leader." When we probed further to inquire what the term "leader" meant in this context, she replied that there was no specific role it was just that "nobody has the motivation…just nobody has the ambition or desire to organize this and professor just came and looked at me and asked if I would do it so he knew it would get done." Similarly, another participant, when asked about group work in classes commented, "I think the guys are always less prepared." Comments made by other women echoed these experiences as indicated in the following examples:

> Last year I noticed a lot …(male peers) kind of just feel like they can get by on the slide. They're like, you know, I'm cool, everything's cool.

> It's just hard. When your grade reflects… For example, I had a presentation to do in my capstone class. In this class, there is only five females so when she divided us up into groups, there was one female in each group.

This student further explained her experience of taking on the role of group leader,

> nobody . . . none of the guys got it to me on time. One of them didn't even send it to me until like 2 hours before the class the next day. And then when he sent me his part of the paper, it was horrible. Not to be mean, but it sucked, basically. And so then I'm trying to put a paper together, completely redo the whole thing and after putting in all this effort, you know we get like a 70 something on the paper and project and it's like when I put in all that effort and I still get the same grade as them, that's when it's hard.

References to traditional gender roles were not only made with regard to male attitudes toward women, but occasionally reflected women's internalization of traditional

gender roles and sometimes revealed their discomfort with and/or (mis)understandings about equity for women as in the following comment,

> there's reverse prejudice in some instances...like we have the women's something center right? Is there a men's resource center? I'm more scared of those feminists than I am of men..."

Homophobia was another factor that emerged in the anxieties about feminism and/or gender equity shared by some participants. For instance, several students shared worries that classmates might perceive them as lesbians if they were to voice their concerns about the absence of women in the curriculum.

Defining Women by their Sexuality

" Dazed looks on their face...ga ga eyes"

Another characteristic of chilly classroom climates is the tendency for women to be evaluated "more on the basis of their attractiveness, sexuality, and personality than their intellectual competence and abilities" (Sandler, Silverberg & Hall, 1996, p. 15). Participants in this investigation described these types of behaviors. While several students relayed experiences they characterized as inappropriate, other students described behaviors that were more subtle to them, but not without power to affect the climate of the classroom. For instance, one student relayed her experience in a predominantly male classroom,

> if I have ever noticed a difference in gender, it's when there's someone standing in front of the class...There's an attractive young lady up there, you can kind of see them getting squirmy in their seats...if there is like a cute girl up there, they're definitely not listening to her at all. There is a dazed look on their face.

She elaborated on how this affects her personally when she's in a class where they have to make lots of presentations, "we have to dress up...You know, and I'm always like, okay I'm standing up in front of like 60 boys, what am I going to wear?"

In disciplines with a male majority that require internships and fieldwork experiences, female students in our investigation and others (Madden, 2000a) report being faced with unwanted sexual attention. For example, one student alluded to this when she described her internship placement, "Down on the floor, it tends to get kind of raunchy." She further elaborated, "I find that the older, uneducated are the worst when it comes to sexual harassment" in the mill. Another student in the same field explained that she was told by her internship supervisor at the paper mill "do not go down to the union coffee room cause you will get hassled down there."

Related to faculty behaviors, a number of students described instances where professors used sexual humor, innuendo, and explicit sexual attention making for uncomfortable experiences as depicted in the following examples,

> Yeah, he's very outrageous in the classroom. He makes women get up and dance. There was one girl in class who was a dancer and she was very into it. . . he just egged on all this weird gender stuff in the classroom... There were times when I was really mad because he put people in situations that they . . . put me in situations that I didn't feel comfortable being in but also I had to watch other people and a lot of the men, they were into that. They responded to him on that level, I think and they wanted to talk about what they thought about women and assumptions and things. And some of the girls, like the girl who wanted to dance in the class, got off on it. . . it wasn't appropriate in a writing classroom, I don't think...He alienated quite a few of us (discipline with proportionate numbers of male and female students).

> I think we were talking about the first 3D imagery or something and he was passing around . . . these things that I guess men used to have long ago...to see 3D, like little picture...but it was really of naked women. I think they were either naked or close to and like. . . he's like just so know, the women might not want to look at this so it was almost like, if I looked

> at it, I felt like other people might of think I was a lesbian or something and I did look at it quickly just to see what he was talking about but like, I had to also to see what the pose or whatever it was so it was kind of like, why is he passing this around in class? It kind of made me feel uncomfortable because I was looking at it wondering what people were thinking of me (female-majority discipline).
>
> One professor would come up behind me while seated and grab my shoulders or occasionally would lean in toward my neck and comment on how good I smelled (male-majority discipline).

The following related comments were provided in the open-ended section of the survey:

> Comments have been made such as – Women can come to class naked now due to the loophole in our laws. I am sure the guys won't mind. Guys let's meet after class to discuss what we are going to do. (female-majority discipline).
>
> [One professor] related something in class to girls wake up rape dreams before the good part – the actual rape. He also asked females in the class to show off piercings in weird areas such as bellybutton piercings (female-majority discipline).

Other students echoed similar experiences explaining their perception that the male professors they described were relying upon sexually suggestive comments and jokes to develop rapport with students—to be seen as "cool." Some participants reported being confused by such experiences; others said they were "shocked," "uncomfortable," and "humiliated." Some participants made it clear they found the humor used by a faculty member to be sexual, but not sexist.

Discussion

This study grew out of a desire to investigate if the choice of data collection methods could explain in part why some researchers studying classroom climates for undergraduate women at institutions of higher education could conclude that a chilly climate exists while others report that evidence of a chilly climate is thin or absent.

Drawing conclusions about the existence of chilly classroom climates for women in this investigation gave rise to some thought-provoking questions.

Analysis of the quantitative data in this study involved a series of decisions as it always does. In this study, a decision was made to reduce data into scales that measure constructs related to chilly classroom climates. This appeared to be a logical method to manage and analyze the survey data. This approach is supported by the theory that isolated student or faculty behaviors do not create chilly climates. Rather, chilly classroom climates for women result from an accumulation of overt and subtle behaviors. Variables were merged to create scales and descriptive statistics were used to analyze these scales. The next decision to be made was what mean value would we consider indicative of a chilly climate? We decided that behaviors would be considered as having contributed to chilly classroom climates if the mean indicated the set of behaviors had occurred at least "sometimes." This series of decisions about how to analyze and interpret data in this investigation led us to the conclusion that chilly classroom climates are rare at this institution. Yet drawing this conclusion seemed to inaccurately portray the experiences of numerous female students at this university. The end result of these decisions made in the quantitative analysis and interpretation of data obscures the experiences of one fifth of the undergraduate women who participated in this survey. These women reported that 13 out of 19 student behaviors and 3 out 16 faculty behaviors known to contribute to chilly classroom climates occurred at least sometimes.

What proportion of women must identify and label an environment as "chilly" before we conclude that it is indeed inhospitable for women? We realize the answer to this question may vary according to a researcher's theoretical framework. As feminist

researchers, we find it unacceptable to conclude that chilly classroom climates do not exist when 20% of survey respondents identified chilling behaviors in their classroom. Discounting these survey responses because a larger proportion of women do not report them can serve to replicate the demeaning attitudes and behaviors these women have experienced in some of their classrooms. It is similar to, and as unthinkable as, saying that sexual violence is not a problem for women on college campuses because a majority of women do not experience this violence.

The possible lack of critical consciousness regarding gender/sex inequality among our participants presents another dilemma in drawing conclusions from data analyzed via surveys or focus group discussions. Many of the behaviors identified in the literature as characteristic of "chilly climates" reflect socially accepted norms and patterns of communication. As such, it is not uncommon for subtle types of discriminatory behaviors to be interpreted as "normal" and/or justified in order to fit them into an acceptable or comfortable worldview (Johnson, 1997). Women's studies scholars and teachers have long described layers of denial and cultural disincentives that impede women's interpretation of sex/gender and other forms of identity-based discrimination (Bem, 2001; Pharr, 2001). Similar to challenges experienced in efforts to promote anti-racist consciousness, Hogeland (1994) describes some of the barriers for women to adopting a feminist consciousness including fear of complexity, fear of thinking, fear of change, fear of politics and fear of anger. When viewed from this perspective, the following participant comments might be understood as reflecting a fear of feminism:

> I think this survey is trying a little to hard to get us to say that we are being discriminated against.

> I do not feel suppressed as a female student. I really feel that whoever put these questions together needs to stop worrying and fishing for problems. I do not feel there is a problem, and I think people make bigger deals out of a situation than they are worth. People need to stop making themselves victims. Toughen up.

Many scholars have described the cultural "myth of meritocracy" (Johnson, 2001) as a substantial impediment to developing a lens through which to see a wide range of discriminatory practices. This discourse clearly emerged in the thinking of a number of study participants as indicated in the following:

> A class is not designed to coddle students, either male or female. Students need to not be put off by the people who interrupt during class discussion, etc. Instead, [they need to] say what they have to say. I think it is important for all students to feel comfortable in their classes, and I know I do.

The discourse of meritocracy and the fear of feminism are important perspectives to take into account when evaluating the outcomes of this study and in determining which methodological approach is best suited to documenting classroom climate. Based on this investigation, we suggest that the focus group method, while not immune to the challenges related to denial of gender inequality, may be better suited to the task of assessing whether or not behaviors characteristic of chilly classroom climates exist in particular arenas. Focus groups have the potential to produce rich, in-depth data about the questions at the center of an investigation. The group setting offers a social context for the collection of data enabling the researchers to explore and discover the ways in which participants speak about, co-construct, and interpret their experiences and how they react to the experiences of other group members (Kitzinger & Barbour, 1999; Madriz, 2000; Wilkinson, 1999a, 1999b). The conversation style of focus groups enables

women to share stories they may have previously thought unimportant or irrelevant and do not consider when responding to self-report survey questions (Madden, 2000b).

Implications

Findings from this investigation support the contention that research methods are an important factor to consider when assessing classroom climates. In this study, focus group data were more likely to describe the presence of both subtle and overt behaviors characteristic of chilly classroom climates. Further, both survey and focus group methods indicate that disciplinary differences are an important variable to consider when assessing classroom climates.

Perhaps more important than considering the type of research methods used in classroom climate studies, is considering the theoretical frameworks guiding the researchers' analysis and interpretation of the data. As we have described here, decisions made throughout the research process, regardless of types of methods used, can have a marked effect on the findings, and in the case of quantitative analysis, can have the end result of obscuring experiences that may be indicative of chilly classroom climates.

Finally, the data also reveal important distinctions related to attribution and responsibility for chilly classroom climates. Participants in this study identified student behaviors as contributing to chilly classroom climates more often than instructor behaviors. While instructor behaviors are an important factor in establishing classroom climate, our findings suggest that attention to student behaviors is key. Moreover, instructor responsibility setting a tone for student behaviors in the classroom and course-related activities is an issue that needs further emphasis in the literature. In order to enhance learning opportunities for all students, faculty need to monitor their own

behaviors as well as identify and monitor problematic student behaviors linked to chilly climates.

The findings from this study underscore the complexities involved in assessing classroom climates. A sophisticated understanding of the subtle influences on classroom climate and trustworthy mechanisms by which to measure these influences are essential for ensuring educational quality for all students.

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